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SEQUENCE LISTING

(1) GENERAL INFORMATION:

   (i) APPLICANT: Reeves, Peter R
              Wang, Lei

  (ii) TITLE OF INVENTION: Nucleic Acid Molecules Specific For
        Bacterial Antigens And Uses Thereof

 (iii) NUMBER OF SEQUENCES: 4

  (iv) CORRESPONDENCE ADDRESS:
      (A) ADDRESSEE: Thomas Gumley
      (B) STREET: 168 Walker Street
      (C) CITY: North Sydney
      (D) STATE: New South Wales
      (E) COUNTRY: Australia
      (F) ZIP: 2068

   (v) COMPUTER READABLE FORM:
      (A) MEDIUM TYPE: Floppy disk
      (B) COMPUTER: IBM PC compatible
      (C) OPERATING SYSTEM: PC-DOS/MS-DOS
      (D) SOFTWARE: PatentIn Release #1.0, Version #1.30

  (vi) CURRENT APPLICATION DATA:
      (A) APPLICATION NUMBER:
      (B) FILING DATE:
      (C) CLASSIFICATION:

 (viii) ATTORNEY/AGENT INFORMATION:
      (A) NAME: Gumley, Thomas P

  (ix) TELECOMMUNICATION INFORMATION:
      (A) TELEPHONE: 99575944
      (B) TELEFAX: 99576288

(2) INFORMATION FOR SEQ ID NO:1:

   (i) SEQUENCE CHARACTERISTICS:
      (A) LENGTH: 14516 base pairs
      (B) TYPE: nucleic acid
      (C) STRANDEDNESS: single
      (D) TOPOLOGY: linear

  (ii) MOLECULE TYPE: DNA (genomic)

 (iii) HYPOTHETICAL: NO

  (iv) ANTI-SENSE: YES

  (v) ORIGINAL SOURCE:
      (A) ORGANISM: Escherichia coli

  (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

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CTCTGGATGC AATAGTTTCT CTATGCTGTT TTTTTACTGG CTCCGTATTT TTACTTATAG   13020

CTGGATTTTG TTATATATCA GTATTAATCT GTCTCAACTT CATCTAGACT ACATTCAAGC   13080

CGCGCATGCG TCGCGCGGTG ACTACACCTG ACAGGAGTAT GTAATGTCCA AGCAACAGAT   13140

CGGCGTCGTC GGTATGGCAG TGATGGGGCG CAACCTGGCG CTCAACATCG AAAGCCGCGG   13200

TTATACCGTC TCCATCTTCA ACCGCTCCCG CGAGAAAACT GAAGAAGTTG TTGCCGAGAA   13260

CCCGGATAAG AAACTGGTTC CTTATTACAC GGTGAAAGAG TTCGTCGAGT CTCTTGAAAC   13320

CCCACGTCGT ATCCTGTTAA TGGTAAAAGC AGGGGCGGGA ACTGATGCTG CTATCGATTC   13380

CCTGAAGCCG TATCTGGATA AAGGCGACAT CATTATTGAT GGTGGCAACA CCTTCTTCCA   13440

GGACACTATC CGTCGTAACC GTGAACTGTC CGCGGAAGGC TTTAACTTCA TCGGTACCGG   13500

CGTGTCCGGC GGTGAAGAGG GCGCCCTGAA AGGCCCATCT ATCATGCCAG GTGGCCAGAA   13560

AGAAGCGTAT GAGCTGGTTG CGCCTATCCT GACCAAGATT GCTGCGGTTG CTGAAGATGG   13620

CGAACCATGT ATAACTTACA TCGGTGCTGA CGGTGCGGGT CACTACGTGA AGATGGTGCA   13680

CAACGGTATC GAATATGGCG ATATGCAGCT GATTGCTGAA GCCTATTCTC TGCTTAAAGG   13740

CGGCCTTAAT CTGTCTAACG AAGAGCTGGC AACCACTTTT ACCGAGTGGA ATGAAGGCGA   13800

GCTAAGTAGC TACCTGATTG ACATCACCAA AGACATCTTC ACCAAAAAAG ATGAAGAGGG   13860

TAAATACCTG GTTGATGTGA TCCTGGACGA AGCTGCGAAC AAAGGCACCG GTAAATGGAC   13920

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TCGCTACATC TCTTCTCTGA AGACCAGCG CATTGCGGCA TCTAAAGTGC TGTCTGGTCC   14040

GCAGGCTAAA CTGGCTGGTG ATAAAGCAGA GTTCGTTGAG AAAGTCCGTC GCGCGCTGTA   14100

CCTGGGTAAA ATCGTCTCTT ATGCCCAAGG CTTCTCTCAA CTGCGTGCCG CGTCTGACGA   14160

ATACAACTGG GATCTGAACT ACGGCGAAAT CGCGAAGATC TTCCGCGCGG GCTGCATCAT   14220

TCGTGCGCAG TTCCTGCAGA AAATTACTGA CGCGTATGCT GAAAACAAAG GCATTGCTAA   14280

CCTGTTGCTG GCTCCGTACT TCAAAAATAT CGCTGATGAA TATCAGCAAG CGCTGCGTGA   14340

TGTAGTGGCT TATGCTGTGC AGAACGGTAT TCCGGTACCG ACCTTCTCTG CAGCGGTAGC   14400

"ACTACGAC AGCTACCGTT CTGCGGTACT GCCGGCTAAT CTGATTCAGG CACAGCGTGA   14460
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TTACTTCGGT GCGCACACGT ATAAACGCAC TGATAAAGAA GGTGTGTTCC ACACCG   14516

(2) INFORMATION FOR SEQ ID NO:2:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 14024 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (iii) HYPOTHETICAL: NO

    (iv) ANTI-SENSE: YES

    (v) ORIGINAL SOURCE

        (A) ORGANISM: Escherichia coli

    (vi) Note that the first 19bp is from the primer used for the long PCR

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

GTAACCAAGG GCGGTACGTG CATAAATTTT AATGCTTATC AAAACTATTA GCATTAAAAA   60

TATATAAGAA ATTCTCAAAT GAACAAAGAA ACCGTTTCAA TAATTATGCC CGTTTACAAT   120

GGGGCCAAAA CTATAATCTC ATCAGTAGAA TCAATTATAC ATCAATCTTA TCAAGATTTT   180

GTTTTGTATA TCATTGACGA TTGTAGCACC GATGATACAT TTTCATTAAT CAACAGTCGA   240

TACAAAAACA ATCAGAAAAT AAGAATATTG CGTAACAAGA CAAATTTAGG TGTTGCAGAA   300

AGTCGAAATT ATGGAATAGA AATGGCCACG GGGAAATATA TTTCTTTTTG TGATGCGGAT   360

GATTTGTGGC ACGAGAAAAA ATTAGAGCGT CAAATCGAAG TGTTAAATAA TGAATGTGTA   420

GATGTGGTAT GTTCTAATTA TTATGTTATA GATAACAATA GAAATATTGT TGGCGAAGTT   480

AATGCTCCTC ATGTGATAAA TTATAGAAAA ATGCTCATGA AAAACTACAT AGGGAATTTG   540

ACAGGAATCT ATAATGCCAA CAAATTGGGT AAGTTTTATC AAAAAAAGAT TGGTCACGAG   600

GATTATTTGA TGTGGCTGGA AATAATTAAT AAAACAAATG GTGCTATTTG TATTCAAGAT   660

AATCTGGCGT ATTACATGCG TTCAAATAAT TCACTATCGG GTAATAAAAT TAAAGCTGCA   720

AAATGGACAT GGAGTATATA TAGAGAACAT TTACATTTGT CCTTTCCAAA AACATTATAT   780

TATTTTTTAT TATATGCTTC AAATGGAGTC ATGAAAAAAA TAACACATTC ACTATTAAGG   840

AGAAAGGAGA CTAAAAAGTG AAGTCAGCGG CTAAGTTGAT TTTTTTATTC CTATTTACAC   900

TTTATAGTCT CCAGTTGTAT GGGGTTATCA TAGATGATCG TATAACAAAT TTTGATACAA   960

AGGTATTAAC TAGTATTATA ATTATATTTC AGATTTTTTT TGTTTTATTA TTTTATCTAA   1020

CGATTATAAA TGAAAGAAAA CAGCAGAAAA AATTTATCGT GAACTGGGAG CTAAAGTTAA   1080

TACTCGTTTT CCTTTTTGTG ACTATAGAAA TTGCTGCTGT AGTTTTATTT CTTAAAGAAG   1140

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TTTATGATGA GCATAAATTC AAACAGAGGA CCATCATATT TGTATATTTT ACAACGATTG   1320

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GGATATATAT ACCTTTTTAT CTTTTAAAGA GAATGAAAAA AACCCATAGC TCGATAAATT   1860

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CGGCCTTCTT TTTTGGTCCT TTTCTCTCCG TATTGATAAT GTGTACTCCT CTGATCTTAT   1980

TGCATGATAC GTTAAAGAGA TTATCACGAA ATGAAAATAT CAGTTATAAC TGTGACTTAT   2040

AATAATGCTG AAGGGTTAGA AAAAACTTTA AGTAGTTTAT CAATTTTAAA AATAAAACCT   2100

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AAAGATGAGT CGGCAAATTA GTGGTGGGCT CACTTTGCTG GCTGGATTAT CGTTTGTCAT   3120

AACTGCAATA TGCTATATTA CTTCTGGCAT GATTGATTGG CAACTAGTAA TAAAAGGTAT   3180
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AAACGAGAAT GTGTATGCAG AGTTACAACA CTCAATTAAA GTCTTTGTAA TCATATTTGG    3240

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AAGTAATATT GTTAATGCCA TATTTATATT GTTATCTATT ATTACTCTAG TAATATCGTC    3360

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GGGAATCTAT TTAACAATTA ATCTTATTAT AAAGCGATTA ATAAAGTTTA CAAAAGTTAA    3480

CATACATGCT AAAAGAGAAG CTCCATATTT GATATTAAAC GGTTTTTTCT TTTTTATTTT    3540

ACAGTTAGGC ACTCTGGCAA CATGGAGTGG TGATAACTTT ATAATATCTA TAACATTGGG    3600

TGTTACTTAT GTTGCTGTTT TTAGCATTAC ACAGAGATTA TTTCAAATAT CTACGGTCCC    3660

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AAATATCAAA AGCACCCTAT AGCTGAGGAT CTTGGTTGGC GTGGAATTAA TTTACCTAGT    5160

TTCCCCAGCC TATCGAATGA GCAAGTTATT TATATTTGTG AATCTATTAA CGAATTTTAT    5220
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GGATTTTACG AGTGGGGCGG TGGAATTGAT TTTATTAAAT ATATTCTGTC AATATTAGAA      5340

ACGAAACCAG AAATATGTAT CGATATTCTT TTACCGAGAA ATGATATACA TTCTCTTATA      5400

AGAGAAAAAG CATTTCCTTT TAAAAGTATA TTAAAAGCAA TTTTAAAGAG GGAAAGGCCT      5460

CGATGGATTT CATTAAATAG ATTTAATGAG CAATACTATA GAGATGCCTT TACACAAAAT      5520

AATATAGAGA CGAATCTTAC CTTTATTAAA AGTAAGAGCT CTGCCTTTTA TTCATATTTT      5580

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AAAAAAGCAT GGATTGGTTA TATTTATGAC TTTCAACACT GTTACTATCC TTCATTTTTT      5700

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AATATTATTG TTAATGCACA TTCAGTTATT ACCGATGCAA ATAAATATGT TGGGAATTAT      5820

TCTGCAAAAC TACATTCTCT TCCATTTAGT CCATGCCCTC AATTAAAATG GTTCGCTGAT      5880

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CCAACCTTAT TTGAAGGCGG GCCTGGAGGG GGGGTAACAT TTGACGCTAT TGCATTAGGG      6240

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TGGACTTGTT CAGGAAATCC CTCAAAAAGA ATCCACCCCT TTTTATCCTC GTTCCCCTTA      6960

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ATGGTTGATG TTACAACAGG AGCAACCCGA AGATTTTGTG ATTGCAACAG GAGTCCAATA      7260
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TAACACCTTG TTACAAACGA CTTTGCTACG ACTTTCAGGC CTATCATGTC AAAAACCATT   9240

AGTGATAACA AATGAACAGC ATCGCTTTGT TGTGGCTGAA CAGTTAAGGG AAATAAATAA   9300
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GTTTGACGAA AAAGGGCAGT TTATCGAGGG CTACTACATT GTCGGCCTGC TGGCAGAAGC   11340
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CCTTATATAA AAAGGAGAAC AAAATGGAAC TTAAAATAAT TGAGACAATA GATTTTTATT   12180
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TAATCATAAC TGATGCGATG GCTTGCCAGA AAGATATTGC AGAGAAGATA TAAAAACAGA   12540
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TGCTTTCTAA AAGCCCCTTA TTTAAAAAAG TATTTTAATG TTGCTATTGC TAATGATAAG   13380
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TTAGTTATTA CTGATACAGC ATGAAATTTA TAATACTCTG ATACATTTTT ATACGTTATT   13980

CAAGCCGCAT ATCTAGCGGT AACCCCTGAC AGGAGTAAAC AATG   14024

(2) INFORMATION FOR SEQ ID NO:3:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 12441 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: double
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (iv) ANTI-SENSE: YES

    (vi) ORIGINAL SOURCE:
        (A) ORGANISM: Salmonella enterica serovar muenchen serogroup C2

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

GTTGACAAAT ACCGACCGTA TAATGAATCA AACGTTCTGG ATTGGTATTT ATCCAGGCTT   60

GACTACAGAG CATTTAGATT ATGTCGTAAG TAAGTTTGAA GAATTTTTTG GTTTAAATTT   120

CTAATTTTTA GGATAGGATG CTTGATGTGA ATAAGAAAAT CCTAATGACT GGCGCTACTA   180

GCTTTGTAGG TACCCATCTA CTACATAGTC TCATAAAGGA AGGTTATAGT ATTATTGCAT   240

TAAAGCGTCC TATAACCGAG CCAACGATTA TCAATACCTT GATTGAATGG TTGAATATAC   300

AAGATATAGA AAAAATATGT CAATCATCTA TGAATATTCA TGCGATTGTC CATATTGCAA   360

CAGACTATGG TCGAAACAGA ACCCCTATAT CTGAACAATA TAAATGTAAT GTCCTATTAC   420

CAACAAGACT GCTTGAGTTA ATGCCAGCGC TTAAAACGAA ATTCTTTATT TCTACTGACT   480

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GACATTTTGT AGAACTATCA AAAATATACG TAGAGGAACA TCCAGACGTT TGTTTTATAA   600

ATTTACGTTT AGAACATGTT TACGGTGAGA GGGATAAAGC AGGTAAAATA ATCCCGTATG   660

TTATCAAAAA AATGAAAAAC AATGAAGATA TTGATTGTAC GATCGCCAGG CAGAAAAGAG   720

ATTTTATTTA TATAGACGAT GTTGTTTCGG CCTATTTGAA AATTTTAAAG GAGGGTTTTA   780

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GGCTATTTAT GGTCACCAGC GAGTAGGTCG GCATGGAAAA CTTTTTCCAT GCTACAAATT    12420

TCGTTCTATG GTTATGAATT C                                             12441
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(2) INFORMATION FOR SEQ ID NO:4:

  (i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 22080 base pairs
    (B) TYPE: nucleic acid
    (C) STRANDEDNESS: double
    (D) TOPOLOGY: linear

  (ii) MOLECULE TYPE: DNA (genomic)

  (iv) ANTI-SENSE: YES

  (vi) ORIGINAL SOURCE:
    (A) ORGANISM: S. enterica serovar typhimurium (serogroup B)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

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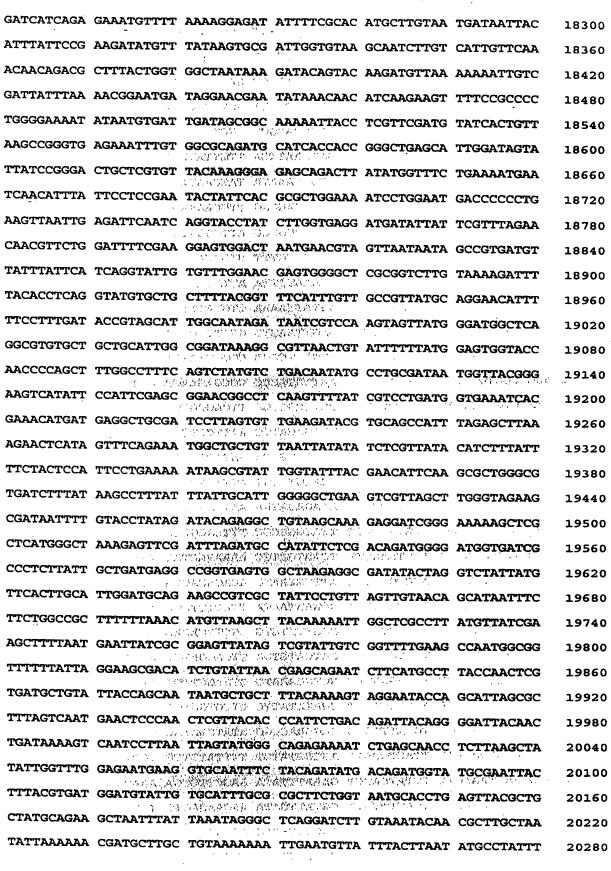
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